

## Claims

1. A method of optically encoding data for transmission over a wavelength division multiplexed optical communications system comprising the steps of:  
5 generating a periodic series of optical pulses defining a series of time slots, wherein one pulse appears in each time slot;  
filtering the pulses to produce carrier pulses extending over more than one time slot; and  
modulating the pulses with data for transmission.  
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2. A method according to claim 1, wherein the filter gives rise to the pulses having a temporal profile with a minimum substantially in the centre of each of the time slots adjacent to the time slot for that pulse.
- 15 3. A method according to claim 1 or 2, wherein the filtered carrier pulses have a substantially flat top spectral profile.
4. A method according to any preceding claim, wherein the filter is detuned to optimise transmission performance.  
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5. A method according to any preceding claim, wherein the step of modulating the pulses with data is performed before the filtering step.
6. A transmitter for producing an optical data signal for transmission over a wavelength division multiplexed optical communication system comprising:  
25 means for producing a periodic series of optical pulses defining a series of time slots, wherein one pulse appears in each time slot;  
a filter having a spectral profile giving rise to pulses with a temporal profile extending over more than one time slot; and  
30 modulating means for modulating the pulses with data for transmission.
7. A transmitter according to claim 6, wherein the filter has a substantially flat top spectral profile.

8. A transmitter according to either claim 6 or 7, wherein the filter is detuned to optimise transmission performance.

9. A transmitter according to claim 8, further comprising control means for  
5 optically detuning the optical filter in order to optimise transmission performance.